Mithra Kancheti

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Education

Purdue University Aug. 2022 – May. 2025

BS in Computer Science and Data Science, Minor in Mathematics

Core Courses: Machine Learning, Numerical Methods, Systems Programming, Statistical Theory

Certification: SAS 9.4 Base Programming Specialist

Teaching: MA 265: Linear Algebra TA

Experience

Kaiser Permanente - Software Engineer Jun. 2025 – Present

- Lead developer for internal tools to automate manual workflows, collaborating with stakeholders to create and adhere to shifting specifications.
- Designing, building, and maintaining pipelines across multiple projects between Databricks, Azure, Oracle Server, etc.
- Building CI/CD integrations to ensure the longevity and reliability of my products.
- Building custom chatbots to reference KP specific domain knowledge, empowering analysts and developers.

Personal

Semantic Search Media Server | *Python, LLM, React, SQL, Docker*

- Built a selfhosted LLM powered system that automatically generates semantic tags for personal media files (text, images, and videos) to enable natural language search.
- Designed a database pipeline that performs incremental classification, updating only untagged files for improved efficiency.
- Implemented entropy-based filtering to identify and downscale low-complexity images, optimizing speed and resource usage during model inference.

Song Performance Prediction | *Python, Pytorch, Postgres, Scikit-learn*

- Designed various regression models and a neural network to perform prediction of a song's performance based on track and artist attributes collected from various streaming services.
- Achieved a final accuracy of 80% with an R^2 of 0.98
- Collaborated in a team of 8 and using agile techniques such as stand-ups and Kanban boards to manage progress.

Robotic Guitar | *C++, Arduino, Embedded Systems*

- Built a robotic guitar using off the shelf Arduino parts and custom designed and 3D printed carbon fiber ABS actuators.
- Designed a power delivery system to step down a USB PD input into multiple regulated voltage rails.

Personal Server | *Hypervisor, Docker, Grafana*

- Set up Proxmox VE to act as a hypervisor for various services including Jupyter Server, Ollama, device backups, etc.
- Utilizing Docker to manage containerization and extensibility of service stacks, integrated with Prometheus and Grafana to monitor the health of services.
- Enabled SR-IOV to minimize latency between VMs, further improved with TCP offloading.

Brilliant Math Problem Database | *Python, React/Vite, Node.js, SQLite*

- Designed and implemented a database using SQLite, handling over 97,000 math problems.
- Developing the frontend with React/Vite, creating an intuitive interface that enables users to filter problems by specific topics.
- Built the backend with Node.js and Express, ensuring efficient data handling and server communication.

Competitive Programming Club

- Used C++ and Python in contests to write optimized solutions with extensive use of data structures and algorithms
- Collaborated with teams of 4-8 members, often taking on a leadership role to coordinate efforts and sub-teams to tackle different tasks, ensuring optimal use of limited time.

Technical Skills

Languages: C/C++, Java, Python, R, JavaScript, HTML/CSS, Flutter/Dart, MATLAB, SQL, x86-64 Assembly
Frameworks/Libraries: NumPy, Pandas, PyTorch, Playwright
Developer Tools: Git, Docker, Linux/Unix, Jupyter, Anaconda, VS Code, Cursor, Ghidra